

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
19 August 2004 (19.08.2004)

PCT

(10) International Publication Number
WO 2004/069517 A1

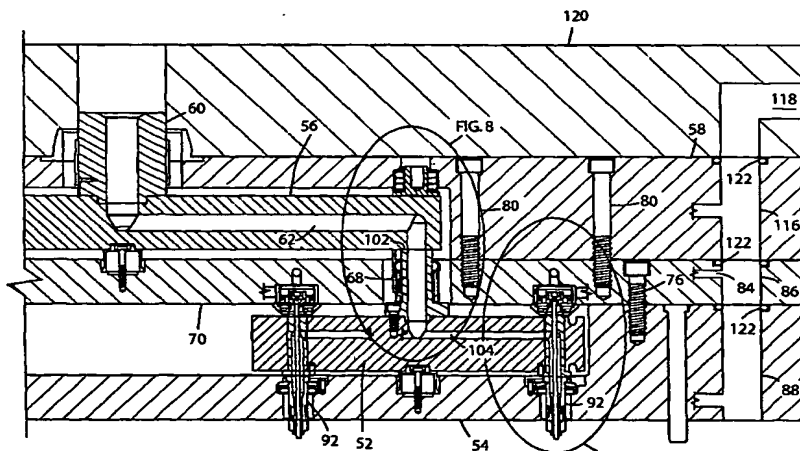
- (51) International Patent Classification⁷: **B29C 45/27**, 45/28
- (21) International Application Number:
PCT/CA2003/000143
- (22) International Filing Date: 4 February 2003 (04.02.2003)
- (25) Filing Language: English
- (26) Publication Language: English
- (71) Applicant (for all designated States except US): **HUSKY INJECTION MOLDING SYSTEMS LTD.** [CA/CA]; c/o AMC/IP Group, 500 Queen Street South, Bolton, Ontario L7E 5S5 (CA).
- (72) Inventors; and
- (75) Inventors/Applicants (for US only): **SERNIUK, Nicholas** [CA/CA]; 2288 Kingsmill Crescent, Oakville, Ontario L6M 3X9 (CA). **KNAPP, John** [US/US]; 600 Route 108 North, Jeffersonville, VT 05464 (US). **BOUTI, Abdeslam** [CA/US]; 81 Comstock Road, Swanton, VT 05488 (US). **JENKO, Edward, J.** [CA/US]; 100 Lamore Road, Essex Junction, VT 05452 (US).
- (81) Designated States (*national*): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.
- (84) Designated States (*regional*): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Declarations under Rule 4.17:

— as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii)) for the following designations AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ,

[Continued on next page]

(54) Title: HOT RUNNER MANIFOLD SYSTEM



(57) Abstract: A manifold system (50) comprising a main manifold (56) with a plurality of arms (64), a plurality of sub-manifolds (52) spaced from the main manifold (56) and communicating with the main manifold (56) through a plurality of melt transfer bushings (68) disposed between the main manifold (56) and the sub-manifolds (52). The melt transfer bushings (68) may include static mixers (140) to homogenize the melt. An air plate (70) is disposed between a backing plate (58) preferably housing the main manifold (56) and a manifold plate (54) preferably housing the sub-manifolds (52). The air plate (70) has a plurality of air channels (74) that communicate with valve gate nozzle actuators (90), which are received in actuator cavities (72) in the air plate (70). The air plate (70) is bolted to the manifold plate (54), and the backing plate (58) is bolted to the air plate (70) with bolting patterns not constrained by location of the main manifold (56) or sub-manifolds (52). The manifold system (50), as shown in Fig. 5, has better thermal and geometric balance, closer nozzle spacing, and better bolting for less plate bowing.



VC, VN, YU, ZA, ZM, ZW, ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG)

— of inventorship (Rule 4.17(iv)) for US only

Published:

— with international search report

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.